

Exemption No. 6706

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of
Cessna Aircraft Company

Regulatory Docket No. 28976

for an exemption from § 25.677(b) of the Federal
Aviation Regulations

GRANT OF EXEMPTION

By letter dated L178-61-97-1444 dated July 8, 1997, Donald W. Mallonee, Executive Engineer, Cessna Aircraft Company, One Cessna Boulevard, P.O. Box 7704, Wichita, Kansas 67277-7704, petitioned for an exemption from the requirements of § 25.677(b) of the Federal Aviation Regulations (FAR) for a clearly visible means to indicate the position of the trim device with respect to the range of adjustment.

Section of the FAR affected:

Section 25.677(b) requires, in part, that when trim systems are installed in an airplane, there must be a clearly visible means to indicate the position of the trim device with respect to its range of adjustment.

The petitioner's supportive information is as follows:

Cessna Aircraft Company's application for an amendment to Type Certificate No. A22CE, to add the derivative Model 560XL airplane, was filed on September 16, 1994. Included in the certification basis of this airplane is § 25.677(b), as amended by Amendment 25-23.

ANM-97-038-E

The Cessna Model 560XL incorporates a trimmable horizontal stabilizer that can be commanded to only two positions. The stabilizer has limited travel and there are no correct intermediate positions for this trim device. The two stabilizer positions are commanded by the cockpit flap position selector, one stabilizer position being for “flaps up” and the other position for all deflected flap positions. Cessna has incorporated a stabilizer position monitor that will illuminate a dedicated amber caution annunciation in the pilots’ primary field of view anytime the stabilizer is not in the commanded position. Protection is also provided for takeoff by sending a stabilizer position signal to the takeoff configuration warning system. Cessna has conducted flight tests that substantiate the benign effect on airplane performance and handling characteristics if the stabilizer is in the extreme opposite position of that commanded by the flap select handle.

Cessna Aircraft believes that an exemption:

1. Would be in the public interest because:

“a) The elimination of a stabilizer position indicator enhances aircraft safety which is of vital benefit to the public interest.

b) The elimination of a stabilizer position indicator will reduce the product cost and will be a direct benefit to the public interest. It is estimated that the addition of a stabilizer position indicator would add in excess of 10 million dollars to the life cycle cost of the Cessna Citation Model 560XL aircraft.

c) The elimination of the stabilizer position indicator will reduce maintenance action which in turn enhances the dispatchability of the aircraft and in addition eliminates delay and/or cancellations. The elimination thus results in a higher quality of transportation being provided, which is very beneficial to the public interest.”

2. Would not result in any reduction in the level of safety from that existing in the world fleet of airplanes whose certification basis includes the requirement to have a visual indication of trim device position relative to its full range of motion.

A summary of Cessna’s petition was published in the Federal Register on October 8, 1997, (62 FR 52613). No comments were received .

The FAA's analysis/summary is as follows:

The FAA has carefully considered the information provided by the petitioner. Though the FAA does not concur with Cessna that the elimination of a stabilizer position indicator enhances aircraft safety, the FAA has determined that there is sufficient merit to warrant granting this

petition for an exemption to the requirement of § 25.677(b) for a visual means of indicating trim device position.

Section 25.677(b) of the FAR, in part, requires a visible means to indicate the position of the trim device with respect to its range of adjustment. For many airplanes this requirement is particularly important for the longitudinal axis to permit large operational ranges of the center of gravity; a specific example would be the “takeoff green band” identified in most transport category airplanes’ trim systems that shows the range of trim settings that will result in safe takeoff handling characteristics.

The two position trim system of the Cessna Model 560 XL has a limited range of travel, incorporates a monitoring system that provides a visual caution to the flight crew, and has been shown to still permit compliance with FAR 25 handling characteristics requirements when operated with the trim at the extreme opposite position for the commanded flap setting. Based on these facts, the FAA considers the two position trim system of the Cessna Model 560XL to be an acceptable alternative to the trim position indicator requirement of § 25.677(b).

In conclusion, the FAA has determined that the two position horizontal stabilizer trim system of the Cessna 560XL meets the intent of § 25.677(b) of the FAR.

In consideration of the foregoing, I find that a grant of exemption is in the public interest, and will not adversely affect safety. Therefore, pursuant to the authority contained in §§ 313(a) and 601(c) of the Federal Aviation Act of 1958, delegated to me by the Administrator (14 CFR 11.53), the petition of the Cessna Aircraft Company for exemption from the requirements of § 25.677(b), to provide a clearly visible means to indicate the position of the trim device with respect to its range of adjustment, is granted.

Issued in Renton, Washington, on December 12, 1997

/s/ Gilbert L. Thompson

Gilbert Thompson

Acting Manager, Transport Airplane Directorate,
Aircraft Certification Service, ANM-100